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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/532,272

10/11/2005

Patrice Mahe

12928/10023

8338

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06/30/2006

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EXAMINER

FREJD, RUSSELL WARREN

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/532,272 | MAHE ET AL. | |
| | Examiner | Art Unit | |
| | Russell Frejd | 2128 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.20.05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Examination of Application #10/532,272

1. Claims 21-40 of application 10/532,272, filed on 11-October-2005, are presented for examination. Claims 1-20 were cancelled by the Preliminary Amendment received on 20-April-2005.

Claim Objections under 37 CFR 1.75(d)(1)

2. Claims 26 and 34 are objected to under 37 CFR 1.75(d)(1), wherein the claims contain the following grammatical errors.

Claim 26 line 5 "that" the...

Claim 34 line 4 "clusters, one" is understood to mean "clusters, or one"

Claim Rejections under 35 U.S.C. § 112, 2nd Paragraph

3. Claims 26 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being vague and indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 line 7 "for one of the and each rod"

Claim 35 line 2 "stress(es)"

Claim Rejections under 35 U.S.C. § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

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4.1 Claims 21-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The invention claims (claim 21 preamble), *"A method for establishing at least a limit value (tmax) for at least a first operational parameter of a nuclear reactor having a core, in which fuel assemblies are loaded, the fuel assemblies having fuel rods each comprising pellets of nuclear fuel and a cladding which surrounds the pellets"*.

4.2 MPEP Section 2106(IV)(B)(2)(b)(ii) provides that a statutory computer process is determined not by how the computer performs the process, but by what the computer does to achieve a practical application with a useful, concrete and tangible result. For example, a computer process that simply calculates a mathematical algorithm that models noise is nonstatutory, while a claimed process for digitally filtering noise employing the mathematical algorithm is statutory. The long line of cases in this area that are referred to in MPEP Section 2106(IV)(B)(2)(b)(ii) exemplify this requirement, by utilizing in the claim language, terms such as controlling, executing, changing and removing. In view of the aforementioned requirement and the interim guidelines for 101 eligibility, the Examiner respectfully contends that the claim language of independent claims 21, 37 and 39 do not claim a practical application with a tangible result, that language claiming: in claim 21:

simulating (emphasis added) at least a transient operational occurrence of the nuclear reactor;

calculating a value reached by a physical quantity during the transient operational occurrence in at least the fuel rod cladding; and

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establishing as a limit value, the value of the first operational parameter when the value calculated by the physical quantity corresponds to a value for the physical quantity which characterizes a failure of the cladding.

4.3 For at least these reasons, the Examiner respectfully posits that the claims of the present invention do not meet the criteria for a statutory process. Accordingly, the claims are determined to be a method for establishing at least a limit value (tmax) for at least a first operational parameter of a nuclear reactor having a core, consisting solely of mathematical operations, converting one set of numbers into another set of numbers, whereby the method does not manipulate appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

4.4 The Examiner also posits that the method of claim 38 of the present invention is computer executable software code, or a program per se, consisting of software instructions that implement the method for establishing at least a limit value (tmax) for at least a first operational parameter of a nuclear reactor having a core. For at least this reason, the software instructions of the present invention do not meet the criteria for a statutory process.

Claim Rejections under 35 U.S.C. § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5.1 Claims 21-25 and 37-40 are rejected under U.S.C. 102(b) as being anticipated by Shaug et al., USP 5,912,933.

5.2 Shaug et al. disclose: in regard to claims 21 and 37-40, a computer [c. 4, ln. 64] method for establishing at least a limit value (tmax) for at least a first operational parameter of a nuclear reactor having a core, in which fuel assemblies are loaded, the fuel assemblies having fuel rods each comprising pellets of nuclear fuel and a cladding which surrounds the pellets the method [c. 3, ln. 61 through c. 4, ln. 33];

simulating at least a transient operational occurrence of the nuclear reactor [c. 7, lns. 21-28];

calculating a value reached by a physical quantity during the transient operational occurrence in at least the fuel rod cladding [c. 7, lns. 38-42]; and

establishing as a limit value [c. 8, ln. 47], the value of the first operational parameter when the value calculated by the physical quantity corresponds to a value for the physical quantity which characterizes a failure of the cladding [c. 3, ln. 67 through c. 4, ln. 2].

In regard to claims 22-24, establishing the failure value for the physical quantity which characterizes a failure of the cladding before the step of simulating at least a transient operational occurrence of the nuclear reactor comprises subjecting the fuel rods to gradients of nuclear power [c. 4, lns. 10-12]; calculating the values reached by the physical quantity in at least the cladding which has failed during a power gradient [c. 7, lns. 21-31]; and selecting a minimum value from the values reached by the physical quantity [c. 8, ln. 47].

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In regard to claim 25, the values which characterize the failure is equal to the minimum value and corrected by a factor which represents an operating mode of the reactor [c. 8, Ins. 34-39].

Claim Objections

6. Claims 26-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response Guidelines

7. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

7.1 Any response to the Examiner in regard to this non-final action should be

directed to: Russell Frejd, telephone number (571) 272-3779, Monday-Friday from 0530 to 1400 ET, or the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279. Inquires of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist (571) 272-2100.

mailed to: Commissioner of Patents and Trademarks
P.O. Box 1450, Alexandria, VA 22313-1450

or faxed to: (571) 273-8300

Hand-delivered responses should be brought to the Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA, 22314.

Date: 23-June-2006



**RUSSELL FREJD
PRIMARY EXAMINER**